

Reptiles And Amphibians Of The Goegap Nature Reserve

By Tanja Mahnkopf

Introduction

The reptiles are an ancient class on earth. The earliest reptile fossils are about 315 million years old. During the aeons of time they evolved a great diversity of extinct and living reptiles. The dinosaurs and their relatives dominated the earth 150 million years ago. Our living reptiles are remnants of that period or from a period after the dinosaurs were extinct.

Obviously it looks like reptiles are not as successful as mammals. It is true that mammals can live in cold areas like arctic tundra or cold seas, where most reptiles don't have a chance to survive in the long term, because they are ectotherms and need the warmth from the environment to become mobile. But if reptiles wouldn't be successful there wouldn't be so much of them. There are more reptile species than mammal species in southern Africa.

Mammals and birds have to keep their body temperature constant to maintain muscle and biochemical efficiency at all times but this requires a permanent supply of food. Reptiles obtain their heat externally. They sit in the sun until their body has the right temperature and then they move to and fro sun and shade to keep this temperature. They survive and grow with much less food than mammals or birds do. But during cold weather they become dormant. In arid regions, where food is infrequent available it is an advantage to survive without permanent food supply.

All reptiles have a dry and horny skin, which is usually modified into scales and plates. This prevents rapid water loss and allows them to be independent from moist areas. The Succulent Karoo is dry and this is no problem for reptiles but what about the amphibians, which live here? There are only a few of them that managed to live here. Unfortunately there is not much information found about the amphibians in this area but some information about amphibians in deserts in general. Most amphibians lay jelly-like eggs in water. These hatch into an aquatic larvae stage called larvae or tadpoles so they need water to reproduce. Amphibians have a permeable skin, which allows them to „breathe“, and absorb water through it but this makes them vulnerable in arid regions they would dry out very fast. So they spend much of

their time underground in burrows. These amphibians often leave their burrows after heavy rains that are seldom.

There are reptiles included in this report, which don't occur here in Goegap but at the Augrabies Falls NP. So you can find here also the Nile monitor and the flat lizard.

Measuring reptiles

In tortoises and terrapins the length is measured at the shell. Straight along the midline of the carapace. The SV-Length is the length of head and body (Snout to Vent). In lizards it easier to look for this length because their tail may be a regenerated one and these are often shorter than the original one. The length that is mentioned for the species in this report is the average to the maximum length. For the snakes I tried to give the total length because it is often impossible to say where the tail begins and the body ends without holding the snake. But there was not for every snake a total length available.

Except of the chameleons (there are only two) you can find all reptiles in the appendix, which may occur at Goegap but haven't been recorded. If there are subspecies of a reptile, there is a description of the subspecies that occurs in Namaqualand. For the snakes there is only a description of the colouration and the length of each species and some characteristics you can see through a binocular. For all other identification characteristics you would have to catch it what would be a difficult thing for most snakes. The same problem is with the lizards, because they are as well not easy to catch. To make it a little bit easier there is behind every species a hint to the appropriate illustration in "Field Guide to the snakes and reptiles of Southern Africa" and there are photos to some species in this report.

Tortoises, Turtles And Terrapins (Chelonians, Order Testudines)

Chelonians is the correct scientific term for the shield reptiles. The common names tortoise, turtle and terrapin are often used to differentiate the animals by their habitats (on land, in the sea or in freshwater). The chelonians are all easily recognizable by virtue of their shell. This shell may be soft, leathery, hard, flat, knobbed or hinged and makes the chelonians easy to distinguish from other reptiles. Characteristically features of the chelonians are the anapsid skull, which means that there are no openings in the temporal region (side of the forehead) and a bony shell that is divided into an upper carapace and lower plastron. The structure of the shell is composed in an outer horny layer covering a bone case that is fused to the ribcage. This circumstance entails some rearrangements in tortoise anatomy. E.g. the shoulder

blades and hips are inside the ribcage. The shell is very protective but it reduces the locomotion of the chelonians and makes them slow. So it is no wonder that most of them are herbivorous. Some aquatic species that have lighter shells capture prey like small fish, but normally they use a concealment to catch them.

All chelonians lay eggs, which are usually soft-shelled in aquatic forms (sea turtles and side-necked terrapins) and hard-shelled in tortoises and soft-shelled terrapins. They lay their eggs in clutches and leave them alone then. There is no maternal care and after hatching the young must fend for themselves. The time between laying and hatching is from four to 15 months and is in part depending on the season the eggs are laid. In many species the incubation temperature regulates the gender of the young. At a higher temperature (31-34°C) females are produced and males at a temperature that is less.

Tortoises at Goegap

There are four species of tortoises recorded at the reserve and one terrapin that may occur.

Here is an explanation of the terms that are necessary to describe chelonians.

Buttock tubercles: This is an enlarged conical scale on the rear upper part of the hind legs.

Cuspids: Teeth-like projections

Gular: A plate on the Plastron (lower surface of the shell) at the throat region.

Marginals: plates at the edge from the carapace (upper surface of the shell)

Nuchal: A small scute at the front of the carapace

For more details see illustration in “Field Guide to the snakes and reptiles of Southern Africa” (p. 26)

Tortoises/Skilpaaie

Family Testudinidae (Land Tortoises)

These chelonians are very good adapted to their terrestrial way of life. Their hindfeet are webless and elephant like. They walk on the tips of their armoured and clawed forefeet. Most have domed, thick shells.

***Homopus signatus* (Speckled Padloper/Gespikkelde Padloper)**

Pl.: 6

It is the smallest tortoise of the world! This tortoise is endemic to the Namaqualand and parts of the Western Cape. There are two subspecies of *Homopus signatus*. The subspecies, which occurs at the Namaqualand, is the *H. s. signatus*.

Identification: Length: 60-80mm, the shell is flattened and has a rounded bridge and usually 12 marginals that may be serrated. It lacks a hinge but has a nuchal and paired gulars. The beak is weakly hooked or not hooked at all. The forelimbs are covered with large, overlapping scales and each forelimb has five claws. Buttock tubercles are present. Males have a well-developed concavity in the plastron and a long tail. The *H. s. signatus* has a nuchal, which is wider than longer; marginals are serrated and the carapace shields are raised with sunken centres; the carapace is light brown with extensive black splashes.

Biology and breeding: They forage small succulents among granite slabs and are active in the early morning in rocky areas and several of them may be found sheltering together under a rock slab. Mating takes place throughout spring and autumn. Before copulation both of them bobbing with their heads. The females lay their eggs during spring and summer. They select moist soil under rock overhangs to lay their eggs. It takes 100 to 120 day until the tortoises hatch. The hatchlings start to feed immediately, because the yolk sacs have been already absorbed.



***Geochelone pardalis* (Leopard Tortoise/Bergskilpad)** Pl.: 4

If you take a look at the map in “Field Guide to the snakes and reptiles of Southern Africa” you’ll see that it should not occur in this region. But it is also said that it is now found in some regions, which are not their natural habitats. And we saw this tortoise in the Augrabies National Park.



Identification: Length: 300-450 mm and a weight between eight and twelve kg. The carapace is domed and not hinged and the scutes are only faintly raised. In juveniles and very old adults they are smooth. The gulars are paired and as long as wide. The nuchal does not exist. There are 10-12 marginals. The marginals on the rear side are usually serrated and often upturned. The beak is unicuspid and often serrated. It is also sometimes hooked. Each front foot has five claws. There are two to three buttock tubercles on each side. Hatchlings have a yellow carapace with central pair or single black spots. With the age the ground colour becomes darker and heavily blotched. Old adults are often uniform dark grey-brown. The plastron is yellowish and often with black radiating streaks and spots.

Biology and breeding: The first year it grows very slow but it increases than fast. At the age of 7-8 years the weight is about 1kg. The sexual maturity is probably reached in 15 years and growth has slowed than again. This tortoise feeds on a wide variety of plants, e.g. grasses, annuals and succulents and also gnaws bones or hyena faeces to get calcium for shell growth and egg development. It has large home ranges of about 1-3 km². During cold rain and winter it shelters in thick bush. Meeting between two males will engage in combat, predominantly in the breeding season. That means that they are pushing and butting each other. Mating is similar rough styled. The male is pursuing and butting the female in submission. Copulation is a noisy event often accompanied by a wheezing of the male. The eggs are laid at a sunny well-drained place. The female excavates a hole (up to 250mm across and deep) with her hind feet. She urinates to soften the hard soil while digging the hole. Usually there are 6-15 hard shelled eggs laid which have a similar shape to Ping-Pong balls. The hole is then refilled with soil and the female may tamp the soil down by lifting and dropping her shell on the spot where the eggs were laid. Large females can lay three to six clutches at monthly intervals during the summer. Incubation takes 10-15 months depending on the temperature.



***Chersina angulata* (Angulate Tortoise/Ploegdkaarskilpad) Pl.: 4**

This tortoise is endemic to South Africa and extends just into S. Namibia. It is the only African tortoise, which has an undivided gular at the front of the plastron. Its habitat is the sandy coastal regions, including mesic thicket and coastal fynbos.

Identification: Length: 150-250mm and a weight of about 1,5 kg. The



carapace is never hinged. It is elongate and flared at the front and behind in mature males. There are 10-12 marginals (usually 11) and a nuchal is present. It has a single gular, which protrudes beneath the head in mature males. The beak is faintly hooked bi- or tricuspid and rarely serrated. There are five claws at each forefoot but it has no buttock tubercles. The scutes are slightly raised. The carapace is straw-yellow in colour and the top scutes have dark-brown areolae and black edges. There is a black triangle at the posterior edge of every marginal. The plastron has a dark irregular centre and often with white sutures in old animals. The abdominals are light orange to bright red. Old adults become a smooth shelled and uniform dirty straw colour.

Biology and breeding: It feeds on grasses, annuals and succulents and drinks water through its nose from rock pools. On sandy soils it raises its hindlegs, push the snout in the soil and filter the water, which rinse from the shell and puddles around the head. It is active during the morning and shelters when the sun becomes too hot. The preferred body temperature is about 30°C but it can withstand temperatures higher than 40°C. It ejects the liquid parts of its bowels, when handled, often up to 1m with an unexpected accuracy. The home range has a size up to 2ha but in moist regions often lesser. Males don't defend their territories but dominant males prevent other males from mating by butting and overturn the other one with its enlarged gular. The eggs are laid after rain, when soil is soft and moist. The female digs a shallow hollow with the hindfeet and lays one egg in it and covers it then with soil and tamps down. It is possible that a female lays an egg 4-6 times a year. Incubation takes 90-200 days, depending on the season. The egg may crack 6-10 days before the young hatch out. The growth is rapid in the first 8-10 years and slows down then. Sexual maturity is reached in 9-12 years.



***Psammobates tentorius* (Tent Tortoise/Knoppiesdopskilpad) Pl.: 7**

It is endemic to arid karoooid areas and rocky sandveld. These are the regions of the Great and Little Karoo, the succulent Karoo of the Cape west coast and S. Namibia. The subspecies that occurs in the Namaqualand is *P. t. trimeni*. Seen at the Knersflakte.

Identification: Length: 80-120mm. The carapace is domed or flat, with or without raised scutes and is not hinged (depending on the subspe-



cies). A nuchal is present, which is broader than longer and is often minute but rarely absent. The pair gulars are longer than broad. It has usually 11 marginals. Its beak is usually hooked and bi- or tricuspid. The forefeet each have five claws and are covered with large abutting scales. Buttock tubercles are present but may be reduced or absent in the western race. Coloration is varied. The carapace usually has geometric patterning. Males are smaller than females and rarely exceed 100mm. *P.t. trimeni*: Carapace has small knobs and is well marked with orange-yellow stripes on black ground.

Biology and breeding: During droughts it burrows into sandy soil at the base of low shrubs. And emerges after the start of rain. It's active during the early morning and the evening. It feeds on small succulents. It drinks by raising its hindlegs and sipping the water that drains along the shell grooves to the forefeet. The eggs are laid during summer and the little tortoises hatch out after about 220 days. The females of the western races lay 1-2 eggs. The others lay 2-3 eggs.

Family Pelomedusidae (Side-necked Terrapins)

These chelonians are restricted to the African continent and Madagascar. When they withdraw their head it is pulled to one side under the carapace so that one eye can be seen. The shell is flat and hard and the hindfeet are webbed. Some species have long necks.

***Pelomedusa subrufa* (Cape Terrapin, Marsh or Helmeted Terrapin/Kaapse Waterskilpad) Pl.: 10**

This terrapin occurs wherever water is present but usually absent from permanent waters populated by crocodiles due to its thin shell.

Identification: Length: 200-300mm. It has a flat, hard, thin shell without a plastral hinge. The head is large with two small tentacles (of unknown function, but possible used in mating) beneath the chin. There are musk glands at the fourth to eighth marginals near the carapace edge. The shell is uniform olive to dark brown above. Sometimes the shields are black-edged and the marginals are than paler. The plastron is black pale-coloured or with symmetrical pale centred pattern. Its head is dark on top with vermiculations (a pattern of fine, wavy worm-like lines) and pale below and on the jaws pale.

Biology and breeding: It is omnivorous and feeds on almost anything, including water weed, insects, and frogs. In some regions it acts from the ambush. It drowns and devours doves and sand grouses drinking at the water edge. It basks at the bank, a log or floats at the surface of warm water. It survives droughts by burrowing into moist soil. Mating occurs in water during summer. The male follows the female and touches her vent and hindquarters with his snout. If she is interested he grips the edge of her shell with his feet and rubs his two sensory tentacles on the back of her

head. He also expels a water stream from his nostrils over her face. Usually 10-30 soft-shelled eggs are laid in a flask-shaped pit. The female digs it with her hind feet in soft moist soil above the high-water mark. If the ground is hard it softens the soil by urinating on it. The young hatch after 90-110 days and emerges after the soil has been softened by rain.

Scaled Reptiles (Order Squamata)

These reptiles have a scaly skin that is covered with a thin, dry, horny layer. This layer is periodically shed either in bits or in one piece. The skull is diapsid having openings in the upper and lower temporal regions.

Snakes at Goegap

There are 11 species that have been recorded and another 11 species that may occur at Goegap (see Appendix).

Snakes/Slaang (Suborder Serpentes)

Family Typhlopidae (Blind Snakes)

These are very primitive snakes. They have a toothless lower jaw and internal vestiges of a pelvic girdle. They show many adaptations for burrowing like a cylindrical body, an indistinct head, polished, tight fitting scales and reduced eyes under the head shields. Most blind snakes are very similar in appearance and colour. There are oviparous and viviparous species.

Genus *Rhinotyphlops* (Beaked Blind Snakes)

The beaked snout is a feature that distinguishes them from other blind snakes. This is the only blind snake genus in Namaqualand.

***Rhinotyphlops schinzi* (Beaked Blind Snake/ Haakneus Blind-slang) Pl.: 39**

This blind snake is endemic to the semi-desert and arid savannah regions of Namibia and the Northern Cape province.

Identification: SV-Length: 278mm It Has a prominent hooked snout is yellowish to flesh-coloured with heavy blue-black to reddish-brown blotching that may form crossbars along the back.



Family Colubridae (Typical Snakes)

This is a very large family, which contains the most common snakes. None of them has a functional left lung or pelvic vestiges. The majority of them are harmless but a few have powerful venoms.

Genus *Lamprophis* (House Snakes)

These are small to medium-sized snakes. They are nocturnal and have small eyes with vertical pupils. They are harmless constrictors and all are oviparous.

Lamprophis fuliginosus (Brown House Snake/Bruinhuisslang)

Pl: 3, 28

This snake is common throughout southern Africa. It has no special habitat. Seen during night on the road in Goegap.

Identification: Total length: ~60-90cm, max. 120cm. It is uniform red-brown but in this region light orange. There are two pale yellow streaks on the side of the head. The belly is off-white.

Biology and breeding: It forages for small rodents and other vertebrates like lizards. Females lay up to 16 eggs during summer and they hatch after 60-90 days.



Genus *Pseudoaspis* (Mole Snake)

The mole snake is the only species in this genus.

Pseudoaspis cana (Mole Snake/Molslang) Pl.: 35

This is a widely distributed snake, which occurs in whole southern Africa. It lives in sandy scrubland in SW Cape, the highveld grassland, mountainous and in desert regions. It is harmless but may be confused with a black spitting cobra.



Identification: Total length: ~1-1,4m. This is a large thick snake with a slightly hooked nose. The eyes have round pupils. In this region the colour of the adult animals is dark brown or black. Other colorations of adult snakes are a plain light to red-brown, olive or grey. The juveniles have often rhombic markings.

Biology and breeding: They feed on rodents, moles and other small mammals. Juvenile eat also lizards and some eat eggs, which they swallow whole. They live underground in abandoned animal burrows. Males fight in mating season and bite each other severely. Mating time is in late spring (October) and during March-April there are 25-40 juveniles born.



Genus *Psammophis* (Sand and Grass Snakes)

These snakes have their head distinct from the neck and eyes with round pupils. They are fast diurnal snakes. Prey is pursued, grabbed and chewed until the venom takes effect. For humans is the venom usually harmless.

Psammophis notostictus (Whip Snake/Sweep slang) Pl.: 23

This snake occurs in the arid scrubland and karoooid regions. Those are the S. Free state, the Cape provinces through Namibia to S. Angola. In the karoooid regions it is very common.

Identification: SV-Length: ♂ max. 68cm, ♀ max. 73cm. The colour of this snake is uniform or striped. Its back is light grey to dark brown with paler flanks. Sometimes there is a pale stripe or spots along the backbone and a pale stripe on the side. The belly is off-white with grey blushes and at the edges are white and grey stripes.

Biology and breeding: It is a fast predator and chases skinks and lacertids during the heat of the day. A gravid female contained three eggs in October.



Genus *Telescopus* (Tiger Snakes)

These are nocturnal snakes with large eyes and vertical pupils.

Telescopus beetzii (Namib or Beetz's Tiger Snake/Tierslang)

Pl.: 19

This snake occurs in the rocky arid regions of the Karoo and Namib Desert.

Identification: Total length: ~50-80cm, max. 100cm. The body is sandy-buff with a series of dark round blotches on the back. The belly is pinkish-tan.

Biology and breeding: It



shelters between cracks in rocks during the day and chases at night lizards. Females lay 3-5 elongate eggs in December. The young hatch after 80-90 days.

Family Elapidae (Cobras, Mambas and Relatives)

These are medium to large snakes. Their eyes have usually round pupils. This family includes many of the most poisonous snakes. But they are rarely common enough to cause a large amount of snakebites.

Genus *Aspidelaps* (Coral and Shield-nose Snakes)

These snakes live underground in burrows or beneath stones. They are nocturnal and feed on small vertebrates. When threatened they rear up and spread a narrow hood huffs and puffs and may strike. The venom is neurotoxic and a few deaths have been recorded.

***Aspidelaps lubricus* (Coral Snake/Koraalslang) Pl.: 20**

There are three subspecies. The subspecies of Namaqualand, *A. l. lubricus* lives in the karoid regions of W. Cape through S. Namibia. Seen once at the Field-site.

Identification: Total length: ~40cm, max. 80cm. Its body is orange to coral-red with 20-47 black crossbars. The head is reddish with a black crossbar between the eyes.



Biology and breeding: It eats mainly small vertebrates, often other reptiles. It lays 3-11 eggs in December, which hatch in 59-71 days.



Genus *Naja* (Cobras)

Cobras are active foragers, which pursue their prey. When threatened they lift the forebody and spread a hood. Some have modified fangs and spit venom but can too bite. Bites from spitting and non-spitting species are dangerous.

***Naja nivea* (Cape Cobra/Kaapse Slang) Pl.: 20, 27**

Its preferred habitats are the Cape provinces to East London in the east and S. Namibia in the north. It lives there in the arid karoid regions.

Identification: Total length: ~ 120 cm, max. 200cm. It has a broad head and the colouration is varied. The body can be coloured from black to brown, orange yellow or mottled.

Biology and breeding: It is diurnal and hunts rodents, birds and a lot of other animals, even other snakes. It is a nervous snake and doesn't move back when crossing its way. Instead it spreads a broad hood and strikes readily if threatened. Females lay 8-20 eggs in a burrow.



***Naja nigricollis* (Black Spitting Cobra/Swartspoegslang) Pl.: 35**

There are three subspecies. The subspecies, which occurs in Namaqualand, is the *N. n. woodi*. This snake was seen at the Fieldsite and around the house. It can be confused with the harmless mole snake. The venom is not harmful as long as it doesn't get into the eyes or open wounds.



Identification: Total length: ~ 120cm, max. 200cm. It has a broad head and a rounded snout. The colour is an uniform black and a dark grey belly streaked with black. Juveniles are grey with a black head and neck.

Biology and breeding: It feeds on snakes, lizards and small mammals. The *N. n. woodi* is diurnal and was seen to feed on bird nests around the house. It is a nervous and fast snake, which spreads a hood and spits venom in self-defence when threatened.

Family Viperidae (Vipers)

These snakes have usually vertical pupils. The body is stocky with a short tail. Prey is ambushed and killed with venom. Most of them are viviparous but some lay eggs.

Genus *Bitis* (African Adders)

This genus contains the largest and smallest viperines. It is the largest group of African vipers. Prey is captured by ambush and if it is small it is held until the venom has an effect. But normally the prey will be released until it succumbs to the venom. They are all viviparous.

Bitis arietans

(Puff Adder/Poffadder)

Pl.: 12

This snake is very common in southern Africa. It was seen at the Fieldsite during day and evenings.

Identification: Total length: ~ 90cm, max. 170cm. It has a large flattened triangular head. The body is yellow-brown to light brown with black chevrons on the back. It is from a general speckled colour so that the chevrons are not always visible.



***Bitis caudalis* ((Single-) Horned Adder/Horingadder) Pl.: 13**

This snake is widespread in the western region, throughout the Karoo and Kalahari to S. Angola.

Identification: Total length: ~25cm, max. 50cm. It has a triangular head and a single horn above each eye. Coloration is blotched. The back varies from light grey through buff to reddish (common in this region) or greyish-olive to light brown. It also has a series of dark dorsal and lateral blotches. The tail tip is often black and the belly is cream-white.

Biology and breeding: It is active at dusk and lays during the day in the shade of scrubs or shuffles into the sand. This snake usually holds on its prey. It preys small vertebrates that are captured by ambush. Waving of the dark tail tip may attract its prey. If threatened it hisses and strikes at first.

***Bitis cornuta* (Many-Horned Adder/Westelike Horingadder)**

Pl.: 13

This species is endemic to S. Namibia through Namaqualand to SW Cape.

Identification: Total length: ~30cm, max. 61cm. It has a tuft of 2-4 horns above each eye. The body is grey with four rows of dark, angular pale-edged blotches. There are symmetrical dark markings on the head that may form an arrowhead. The belly is dirty white and sometimes speckled.



Biology and breeding: It feeds on lizards, rodents and amphibians. This snake can sidewind and shuffle into loose sand but prefers cracks in rocks to shelter. It is active at dusk and early morning. When confronted it hisses and can strike powerful, that most of its body lifts from ground. Mating is in October-November and 7-12 young are born in late summer.

Lizards at Goegap

There are 34 species listed. Thirteen have been recorded, one unrecorded species was seen and there are 20 species that may occur here. There are additionally the Flat lizard and Nile monitor from the Augrabies NP introduced.

Lizards/Akkedisse (Suborder Sauria)

Family Scincidae (Skinks)

In this family are species which have well-developed limbs and species which have only vestiges of limbs or none. The head is small and lacks an obvious neck. The eyes are small or absent in some burrowing species and have round pupils. They are active during the day and feed mostly on small insects, which are pursued. Many of them have elongated bodies and are highly flexible. Most skinks lay clutches of soft-shelled eggs but some are viviparous and a few species can lay eggs or give birth.

Genus *Aconitas* (Greater Legless Skinks)

These skinks haven't got external ear openings. They are all burrowing and found under stones or dead logs. They obtain most of their moisture from surrounding soil and their food. All of them are viviparous.

***Acontias gracilicauda* (Thin-Tailed Legless Skink/Dunstert Beenlose Skink) Pl.: 44**

There are three subspecies. The subspecies *A. g. namaquensis* is the only one that occurs in the region of Little Namaqualand.

Identification: SV-Length: 20-23cm, max. 26cm. It has a broad head, a rounded snout and a thin tapering tail. The body colouration is from a pale golden-olive to olive to grey-brown and the body scales are always dark-edged, which gives it a speckled look.

Biology and breeding: It prefers a compact moist soil. Females give birth in February.

***Acontias lineatus* (Striped Legless Skink/Gestreepte Beenlose Skink) Pl.: 45**

There are three subspecies and two of them occur in Namaqualand. *A. l. lineatus* occurs in the Great Namaqualand and *A. l. tristis* is found in the Little Namaqualand. Both prefer sandy, arid soils.

Identification: SV-Length: 13-15cm. It has a flattened snout and the tail is below flattened. Both subspecies don't distinguish in colour. They have a yellow back with 4-10 dark stripes or rows of spots and a plain flesh-coloured belly.

Biology: They burrow in loose soil at the base of vegetation.



Genus *Scelotus* (Dwarf Burrowing Skinks)

This genus includes skinks with fore and hind limbs and legless skinks as well. They have a smooth scaled body and the tail is longer than the body in species with limbs and often slightly shorter in species without limbs.

***Scelotus capensis* (Western Dwarf Burrowing Skink/Westelike Dwerggrawende Skink) Pl.: 49**

This species lives in the rocky succulent veld of Little Namaqualand to central Namibia.

Identification: SV-Length: 7,5-9,8cm. It's a small skink with well-developed limbs. Each of them with five toes. The body is light olive to olive-brown with a distinct coppery shine and merges into dark brown or black on the tail. There is an olive-yellow to yellowish-brown dorsolateral stripe from the snout to the tail, where it is often blue to bluish-grey. The belly is greenish-yellow to pale yellowish-brown.

Biology and breeding: It is found under stones, on sandy soil or among rotting succulent aloes. The blue tail distracts attacks away from the head.



Genus *Mabuya* (Typical Skinks)

These are active, diurnal skinks, all with well-developed limbs. Some of them lay eggs but most are viviparous. They have large eyes with moveable eyelids. The ear openings are distinct but are often deeply sunk.

***Mabuya Occidentalis* (Western Three-Striped Skink/Westelike Drie-Streepurk) Pl.: 52**

It occurs in the karoid areas of the Cape, the western Little Karoo valleys, through Namibia and SW Botswana to S. Angola. Seen at the Fieldsite during day.

Identification: SV-Length: 7-9,5cm. The back is rich red-brown to olive-brown with three pale, dark-edged stripes. The flanks are darker but broader by a white stripe, each runs from the lips to the groin. The belly is white.



Biology and breeding: It digs a short burrow in loose sand at the base of scrub bush where it shelters at night.



***Mabuya variegata* (Variegated Skink/Gespikkelde Dwerg Gladde-akkedis) Pl.: 53**

There are two subspecies. The race of Namaqualand is the *M. v. variegata*, which occurs in E. Cape through the karoid areas to Namaqualand and Namib Desert. This race grows bigger than *M. v. punctulata* but looks the same.

Identification: SV-Length: 3,5-5,7cm. Coloration is very varied. The body is light grey to dark brown above and with pale stripes on the flanks. Sometimes there is a third pale stripe on the backbone but in Namaqualand the stripes may be absent or obscured and the back is heavily flecked with black. There also occur pale grey-brown animals. The belly is uniform white. Breeding males have a reddish-brown blush, below the hind legs and on the tail base.

Biology and breeding: It feeds amongst others spiders and beetles. It shelters during night in rock-cracks and burrows under rocks and logs. It's viviparous and females give birth to 2-4 babies in January-march.

Family Lacertidae (Old World Lizards or Lacertids)



These are small to medium-sized lizards. They have a slender body and a long tail. There are no burrowing species and all of them are diurnal. Many are brightly coloured, especially the breeding males.

Genus *Nucras* (Sandveld Lizards)

These lacertids have a rounded snout, a cylindrical body and a very long tail. They forage in the early morning and evening. They feed on termites and other insects. Some of them are specialised on scorpions. All of them are oviparous.

***Nucras tessellata* (Western Sandveld Lizard/Gestreepte Sandveld Akkedis) Pl.: 60**

It lives on the rocky ground in arid savannah and karoo veld at the region of W. Little Karoo, Namaqualand to S. Namibia and Botswana.

Identification: SV-Length: 7-9,2cm. It has a black body with four thin cream stripes on the back and white bars on the flanks. The rear of the body, hind legs and tail are rich red-brown. The belly is white. Some specimens are pale red-buff with only two faint stripes on the back.

Biology and breeding: It feeds on scorpions and spiders, which it dug out from their daytime shelter. The diet also includes grasshoppers, beetles and cockroaches. Females lay 3-4 eggs.



Genus *Pedioplanis* (Sand Lizards)

These lizards have a cylindrical body and a long tail. They are diurnal and dash between the sparse vegetation in arid regions. They are all oviparous and lay clutches with soft-shelled eggs.

***Pedioplanis lineocellata* (Spotted Sand Lizard/Spikkel Sandakkedis) Pl.: 59**

There are two subspecies. *P. l. pulchella* is the race, which in E. and W. Cape through the Karoo to Namaqualand and S. Namibia occurs. There is an isolated population in N. Province.

Identification: SV-Length: 4,5-5,8cm. The Namaqualand and S. Namibia specimens are brightly coloured and have paired, black dorsolateral stripes. The hind limbs are spotted and the tail is flecked with pale and dark spots. The belly is white and males may have a blue-grey throat.

Biology and breeding: They are sit-and-wait hunters and dash from a shaded cover and catch small insects like termites, beetles and locusts. They shelter in a small burrow dug beneath flat rock. The females lay 4-8 eggs in November and they hatch after 70-80 days.



***Pedioplanis namaquaensis* (Namaqua Sand Lizard/Namakwa Sandakkedis) Pl.: 57**

This sand lizard prefers the karoo veld, the arid savannah and semi-desert. These are the regions of the E. Cape through the Karoo, Namaqualand, Namibia and Botswana to S. Angola.

Identification: SV-Length: 4-5,3cm. Juveniles are black with four thin white stripes and brown legs with white spots. They have a white belly and a pinkish-brown tail. This colouration may be the same in adults. But in the western regions fade the dorsal stripes or become pale brown and the flanks may be irregularly barred.

Biology and breeding: These are very fast lizards, which chase small insects during the day. The females lay 3-5 eggs in November.

Family Cordylidae (Girdled Lizards and Relatives)



The body scales of these lizards are arranged in girdles and on the tail in regular rings and are spiny or strongly keeled.

Genus *Cordylus* (Girdled Lizards)

These lizards have always well-developed limbs and a triangular head that is flattened on top and covered with large shields which are fused to the skull. The eardrums are visible but partly shielded by scales. The body scales are arranged in regular rows and sometimes separated by granular interspaces. They are diurnal and live mainly on rocks. All are viviparous and some live in diffuse colonies where the males have territories during breeding time.

***Cordylus peersi* (Peer's Girdled Lizard/Peers se Gordelakkedis) Pl.: 68**

This girdled lizard is endemic to the succulent karoo veld of Little Namaqualand.

Identification: SV-Length: 7,5-8,5cm. It has a flattened body and a triangular, flat head with rough shields. The scales on the flanks are spiny and the tail has whorls of large, spiny scales. Back and tail are jet-black and the belly is very dark purple-brown with pale yellow femoral pores and glandular scales.

Biology and breeding: It catches large insects and caterpillars. The upper surfaces of boulders are preferred for basking. It shelters in rock-cracks and sometimes one crack is home for several lizards. It retreats into deep cracks when approached.



Genus *Platysaurus* (Flat Lizards)

These are very colourful lizards. They have a very flattened body that is covered with granular scales. The legs and the tail have often some spiny scales. Their flat body allows them to squeeze in narrow cracks where they are safe from predators. They are restricted to certain rock types (e.g. granite). That is a reason why they are found in isolated populations. They form dens colonies and males defend territories during breeding time.

***Platysaurus broadleyi* (Broadley's Flat Lizard) Pl.: 105**

This species is endemic to the region of the lower Orange River between Augrabies Falls NP and Pella. There were lot of them seen at the waterfall lookout at the Augrabies Falls NP. You can feed them with crumbs to take a closer look at them.

Identification: SV-Length: 7-8,6cm. Females and juveniles have a dark brown back with three cream coloured stripes. These stripes may be broken and look like spots then or there are sport between them. Their belly is white and sometimes with a blackish patch in the middle. The tail is straw coloured. Adult males are bluish on the top of the head and greenish on the back with a darker area in the middle. And is suffused to pale orange on the tail. The forelimbs are yellow to orange. The throat is dark blue and the belly is black in the front and to the tail it becomes orange.

Biology and breeding: They feed on black flies, which congregate in swarms at the river, but they also take the ripe berries of the Namaqua fig tree and crumbs from tourists.



Family Varanidae (Monitors)

This family contains the largest lizards. They have well-developed limbs and strong claws. The tail is long and laterally compressed and can't be shed or regenerated. The scales are non-overlapping and bead-like. They are oviparous and lay large soft-shelled eggs in holes or termite nests. There are 46 species and only five occur in Africa and two of them reaching southern Africa.

***Varanus niloticus* (Nile or Water Monitor) Pl.: 63**

In southern Africa it occurs in the east extending along the Orange River to the Atlantic Ocean. This monitor was seen swimming in the Orange River in the Aug-

rabies Falls NP. It is the second largest African lizard and the only species, which occurs in the western region (around the Orange River).

Identification: Total length: 2,4m, SV-Length: 60-80cm. The head has an elongate snout and the tongue is dark. The tail is much longer than the body. Adults are greyish-brown to dirty olive-brown on the back and top of the head. It is scattered with dark blotches and from 6-11 light yellow bands or spots on the body. There are 10-18 light crossbands on the tail. Juveniles are patterned in yellow and black.

Biology and breeding: It is an excellent swimmer and uses his long tail to move forward. It often basks on rocks or tree-stumps. The diet is very varied. Adults feed on crabs and mussels but will also take frogs, fish and birds. They excavate eggs of turtles and terrapins to eat them. Juveniles shelter in marginal reed beds and feed on frogs and insects. When disturbed they dive into the water and swim underwater to the safety of the reed beds and if cornered it bites and lash with the tail. After spring rains the female digs a hole in a living termite nest and lays 20-60 eggs in it. This may take 2-3 days. The termites then repair their nest with the eggs inside. This provides a constant temperature and climate during incubation time. It may take up to one year before they hatch.



Family Agamidae (Agamas)

These lizards have a large head with a distinct head. They have movable eyelids and the scales on the head are small and irregular. They are diurnal and often form social groups and demonstrate territorial behaviour. The males are often brightly coloured and/or adorned with frills, crests or throat fans to boost their displays.

Genus *Agama* (Agamas)

Agamas have triangular heads and eyes with round pupils. Their legs are long and with thin toes. They are rock-living or terrestrial but may climb into trees. Males grow larger than females. Females and juveniles are camouflage-coloured.

***Agama atra atra* (Southern Rock Agama/Suidelike Klipkoggel- mander) Pl.: 76**

There are two subspecies (*A. a. atra* and *A. a. knobelli*). Both are so similar that it is not possible to distinguish them without catching the animal. *A. a. atra* has its range from the Cape to S. Namibia and in the east to Kwazulu-Natal and Mpumalang. *A. a. knobelli* is restricted to S. Namibia to Namaqualand. This agama is often seen at the rocks of the Fieldsite.

Identification: SV-Length: 7-13,5cm. The scales on the back are very small. Males have a few enlarged spines. The tail is half as long as the head and body is. Breeding adult males are olive-green to red-brown above and marbled with dark maroon to black and a few pale spots. The head and fore limbs blue to greenish-blue. The throat is intense ultramarine to purple-blue coloured with irregular dark stripes that may extend to the belly. The tail is greyish-white to yellow usually with dark cross bands. An orange-yellow to whitish vertebral streak extends from the head to the tip of the tail. Females and non-breeding males are mottled in tan, cream and dark brown above. They have sometimes red blotches on the flanks. The belly is off-white and there is a bluish network on the throat.

Biology and breeding: They feed mainly on ants and termites but take also beetles and grasshoppers. They live in rocky areas and both males and females maintain territories. There is always a dominant female and male. A dominant male is nodding with his head to show lesser males a sign to pay respect due and stay clear to him. When they feel threatened they hug the rock and this doesn't work they shelter in a large crack. Females lay usually two clutches of 7-18 eggs. The first one in October-November and the second one in January-February.



Family Chamaeleonidae (Chameleons)

Chameleons look different from all other lizards. The head and body are compressed and have no distinct neck. The toes are bound together and opposed. Their tail is prehensile and can't be shed or regenerated. The eyes can move independently but they have a poor hearing sense. Social displays and sexual dimorphism are well-developed. Males and females have their territories, which they defend against intruders by ritualised combats with head-butting, inflating the throat pouch and rapid colour changes. Dwarf Chameleons are much smaller than common chameleons but they are similar to each other.

***Bradypodion ventrale* (Namaqua Dwarf Chameleon/Namakwa Dwergverkleurmannetjie) Pl.: 93**

This dwarf chameleon has its range in the strandveld and dry coastal fynbos of the W. Cape and N. Cape from Cape Town in the south to Steinkopf in the north. It is the only dwarf chameleon Namaqualands.



Identification: SV-Length: 7-9cm. The tail is shorter than the head and body, especially in females. Adults and juveniles have ash-grey bodies that are mottled with dark grey and black.

Biology and breeding: It favours low coastal bush where it is well covered among the lichens-covered branches. It feeds mainly on stinkbugs, moths and caterpillars. It is viviparous and up to 20 babies are born in summer.



***Chamaeleo namaquensis* (Namaqua Chameleon/Namakwa Verkleurmannetjie) Pl.: 96**

It occurs in the sandy regions with scrub vegetation of the western karooid areas through Namaqualand and Namib Desert. To S. Angola.

Identification: SV-Length: 12-16cm. It has a robust head and a big mouth and a feebly prehensile tail. The body is dull green-grey to pinkish-maroon with a few dark spots and a row of 4-5 large pale spots on the upper flanks.

Biology and breeding: It eats nearly everything that is small enough to swallow. E.g. locusts, lizards, crickets and small snakes. A nasal salt gland rids the body of excess salt, which allows the chameleon to forage at the coast. On very hot days it climbs on the top of bushes or rocks and facing head up into the sun to keep cool. Each chameleon has its territory and defends it with display (side to side head bobs). If the intruder doesn't retreat a fight will break out. Females lay 2-3 clutches per year, each with 6-30 eggs. The females defend their clutch.



Family Gekkonidae (Geckos)

Many of these lizards have scansors at their toes. Scansors are groups of scales with minute hairs, which allows them to "stick" on smooth surfaces like flies. Most lack a movable eyelid that has become fused and transparent. To keep it clean they lick with their tongue over it. There are only a few that are diurnal most are nocturnal. They can withstand much lower temperatures than other lizards. All are viviparous and lay usually two eggs. They store calcium for the eggshells in neck glands (endolymphatic sacs). Many live in colonies and have developed sounds, which allows them to communicate in the dark.

Genus *Pachydactylus* (Thick-toed Geckos)

These geckos have usually minute claws on the toes of the hind legs. Their bodies are covered with small, granular, non-overlapping scales. They are usually camouflaged in buffs, browns and greys with speckled blotches or banded patterns.

Pachydactylus bibronii (Bibron's Gecko/Bibron se Geitjie) Pl.: 84

This gecko can be seen around and in the house. It occurs mainly in the karoooid veld and semi-desert of the Cape provinces.

Identification: SV-Length: 7-10cm. This is a large gecko with protuberant scales, which are separated through granular scales on the back. The tail has about the same length as the body and has a fat base and is segmented. The back is dark buff to grey-brown or purplish-black with 4-5 indistinct, dark, wavy cross bands. The belly is white and the tail has 8-10 dark bands that are prominent in juveniles but fade in adults.

Biology and breeding: It lives on rock outcrops, under loose tree bark and on/in houses. It feeds on ants, grasshoppers, moths, termites, beetles and even smaller lizards. Females lay two eggs in rock-cracks or other suitable places.



Pachydactylus mariquensis (Marico Gecko/Mariko-Geitjie) Pl.: 80

There are two races, *P. m. mariquensis* and *P. m. latirostris*, and both occur in this region. They live on flat sandy plains with sparse vegetation in the western arid region of South Africa with a few populations in S. and central Namibia.

Identification: SV-Length: 4-5,7cm. It is a thin-legged gecko with a short snout. There are uniform granular scales without any tubercles on the back. Its tail is cylindrical and unsegmented and is usually slightly shorter than the body. It has a grey to pinkish-buff back with 5-6 wavy reddish-brown and dark-edged cross bands but these could break up and look like irregular pale and dark blotches particularly on the flanks. The tail, as long as it is the original one, has 5-7 dark-edged brown cross bands.

Biology and breeding: It is nocturnal and shelters during daytime under stones and or in scorpion holes. It feeds on small insects. On warm spring nights the males looking for mates. At this time they vocalize. They give a short slow pulse of clicks. The females lay 1-2 clutches, each of them with two eggs in October-March.



Pachydactylus rugosus formosus (Rough-scaled/Thick-toed Gecko/Grofskubgeitjie) Pl.: 83

There are three subspecies but only *P. r. formosus* was recorded at Goegap. It has its habitats in semi-desert and succulent karoooid veld and occurs from Ceres in W. Cape to Little Namaqualand.

Identification: SV-Length: 4,5-6cm. It has a small rounded body with irregular rows of very enlarged tubercles and spiny subcaudals. *P. r. formosus* has additional smooth belly scales and its coloration is a brown to reddish-brown on the upper parts. There are also five wavy, pale-yellowish, dark-edged cross bands. The belly is off-white and lightly speckled with brown. Its tail is broadly banded.

Biology and breeding: It is often found on rock outcrops. When threatened it arches the tail over the back to mimic a scorpion.



Genus *Ptenopus* (Barking Geckos)

These are burrowing geckos that lack scansors at their toes. They forage for insects at night and walk slowly across the sand and pausing often.

Ptenopus garrulous (Common Barking Gecko/Gewone Blaffende Geitjie) Pl.: 79

It is always to hear in the evenings (during nest observation) and was seen after sunset at the Fieldsite. There are two subspecies but only *P. g. maculatus* occurs in Namaqualand. Its whole range is from Namibia through Namaqualand to the Great and Little Karoo. It prefers flat, stable, sandy soil with sparse vegetation but also occurs on other soil substrates of the desert and semi-desert.



Identification: SV-Length: 4,5-6,3cm. *P. g. maculatus*' colour varies with the soil. But it is usually greyish-yellow with black crossbars and five pairs of pale spots on the flanks. It has 5-10 dark bars on the tail.

Biology and breeding: It is active for a short period around sunset. The calls can vary from 1 to 13 clicks but usually there are five of them. They live in burrow systems at the base of scrubs with a lot of blind passages. Some of them end beneath the surface and are emergency exits to escape predators (e.g. small snakes, suri-

cates). If disturbed they freeze and very well camouflaged then. After dark they walk slowly around in search for prey like ants, termites or small beetles.



Frogs and Toads at Goegap

Sorry to say there was only some further information about the African clawed frog found. This is the only species that may occur all others are recorded. The frogs are restricted to the waterholes in the Reserve. The Karoo toad was seen at the Office in the evening, after a rainy day.

Genus Xenopus

Xenopus laevis (African Clawed Frog, Common Platanna/Gewone Platanna)

Its natural range is along the African Rift Valley south from the Sahara Desert. But it is an invasive species and is found in freshwater areas all over the world.

Identification: Males are 5-6cm and females are about 10-12cm long. It has small eyes on the top of the head, which is wedge-shaped and smaller than the body. The three inside toes of each foot have claws. Males lack a vocal sac.

Biology and breeding: It feeds on arthropods that may be living dead or dying and takes other parts of organic materials. It attacks everything that passes in front of it. To localize the prey it uses its sensitive fingers, sense of smell and its lateral line system. Mating can take place during any time of the year but is common in spring. Males vocalize during the evening. They produce the sounds by rapid contractions of their intrinsic laryngeal muscles. Females respond this call either with acceptance or rejection. Mating takes place often during night. The female attaches hundreds of eggs to plants or similar things. The tadpoles filter feed and grow to small frogs in 6-8 weeks.

Genus Bufo

Bufo garipeensis (Karoo Toad/Karoo-Skurwepadda)

Genus Rana

Rana fuscilgula (Cape River Frog/Kaapse Rivierpadda)

Genus Cacosternum

Cacosternum namaquense (Namaqua Caco/Namakwa-Blikslanertjie)

Appendix

Family Typhlopidae (Blind Snakes)

Rhinotyphlops lalandei (Delalandé Blind Snake/Delalandé Blind-slang) Pl.: 39

It has its habitat in semi-deserts, coastal bush, fynbos and savannah regions. These are regions at the Cape provinces, North to East Botswana and South Zimbabwe. But it is absent from Kwazulu-Natal.

Identification: SV-Length: 3,5cm. It has a prominent horizontal cutting edge to the snout. It is uniform pinkish-slate to grey-brown above. Each scale is pale-edged, which gives it a chequered effect. The belly is pale pink-grey and the young are flesh-coloured.

Family Colubridae (Typical Snakes)

Lamprophis guttatus (Spotted House Snake/Gespikkeldehuisslang) Pl.: 17

This snake is endemic to the karoid areas and mesic savannahs of the inland mountains of Cape and Capefold mountains, to S. Namibia and through Kwazulu-Natal to Mpumalanga and N. Province.

Identification: Total length: ~4,5cm. The coloration of the body is regionally variable. There is a series of blotches on the back that may form a zigzag. In this region the body is light brown or tan with only diffuse spots on the frontal of the body. In the north it is pinkish-grey or brown, distinctly marked with dark brown, often dark edged spots. In the E. Cape the colour becomes duller.

Biology and breeding: It shelters in cracks and under flakes of rocks during the day. At night it feeds on geckos, sleeping skinks and lizards. The female lays 3-6 elongated eggs in midsummer.



***Lamprophis fiskii* (Fisk's House Snake/Fisk se Huisslang) Pl.: 19**

This species is endemic to the karoid sandy veld of the Great Karoo, where it occurs in widely scattered localities.

Identification: SV-Length: ♂ 31cm, ♀ 32,7 cm. It has a blunt head. The head is lemon-yellow to dirty yellow and with a double row of alternating dark brown blotches. The belly is creamy white.

Biology and breeding: It lives underground and constricts and feed small lizards. When threatened it hisses and tightly coils and uncoils the front and rear of its body. Unfortunately there is not much known of its habit and behaviour.



***Prosymna frontalis* (South-Western Shovel-Snout/Suid-Westelike Raafneusslang) Pl.: 26**

This snake has its range through the N. Cape to Namibia and S. Angola in the rocky areas in arid regions.

Identification: SV-Length: ♂ ~29cm, ♀ ~38cm. It has an angular snout. The eyes have vertical pupils. The colour of the body is light brown to chestnut above and a white belly. It also has a broad, dark brown to black collar.



***Dipsina multimaculata* (Dwarf Beaked Snake/Dwerghaakneusslang) Pl.: 15, 17**

This is an endemic species, which lives in the rocky sandy areas of the Cape and the karoid areas through SW Botswana and Namibia.

Identification: SV-Length: ~32cm. It has a distinct head with a prominent, hooked snout. The eyes are largish with round pupils. The body is cylindrical. The colouration of the back is of various shades of buff, grey and pink-brown. There are dark blotches that may be pale-centred and/or fuse to form crossbars. It also has a dark V-shape at the back of the neck. The head has an eye-stripe and the belly is white to pink-cream with dark lateral spots.

Biology and breeding: It hides beneath stones or in loose sand at the base of bushes where it lies in ambush waiting for small lizards like barking geckos. When threatened it may adopt a coiled posture that imitates the horned adder. The female lays 2-4 eggs and the young hatch after 53 days.

***Psammophylax rhombeatus* (Rhombic Skaapsteker or Spotted Skapsteker/Skaapsteker) Pl.: 17, 22**

This snake occurs in the highveld grasslands, mesic thicket and fynbos and entering karoid areas. These are the regions of the highveld, coastal Kwazulu-Natal and S. cape. In Namaqualand there are only scattered records.

Identification: Total length: 45-114cm. It has a small head with a rounded snout. The colour of the back is yellowish-brown to pale olive with three (rarely four) rows of dark edged blotches that may fuse to a zigzag or irregular stripes. The upper lip is dark spotted and the belly is yellowish with dark blotches.

Biology and breeding: This snake actively pursues its prey. It feeds on lizards, frogs, rodents, birds and even other snakes. It only bites when provoked.



***Psammophis leightoni* (Cape or Namib Sand Snake/Kaapse of Namib Sandslang) Pl.: 23**

In this region occurs the subspecies *P. l. namibensis*. It is also found in Namibia through S. Angola.

Identification: SV-Length: ♂ max. 96cm, ♀ max. 80cm. The top of the head is spotted or barred.

Biology and breeding: It chases small vertebrates like rodents and lizards but also eat other snakes. A gravid female contained eight eggs in October.



***Psammophis crucifer* (Montane Grass Snake/Montane grasslang) Pl.: 23, 34**

This species occurs in Namaqualand only as a relict population.

Identification: SV-Length: ♂ max. 49cm, ♀ max. 62cm. This snake has a silvery-grey to olive brown back with a dorsal brown and black edged stripe and a similar stripe at its flanks. The belly is yellow-orange.

Biology and breeding: Its main food are lizards, but it also eats frogs. The females lay 5-13 eggs in midsummer.



***Homoroselaps lacteus* (Spotted Harlequin Snake/Gespikkelde Harlekynslang)** Pl.: 19

The snake lives in varied habitats from semi-desert to savannah and coastal bush. This is equal to the ranges of Namaqualand, N. Province and eastern South Africa.

Identification: SV-Length: max. ~62cm. The body is black with a red-orange-yellow vertebrate stripe.

Biology and breeding: It lives in old termite nests, under stones and similar shelters. It feeds on skinks, blind snakes and other snakes. Usually they lay 6-9 eggs in November-December and it takes 50 days to hatch.



***Philonthamnus semivariatus* (Spotted Bush Snake/Gespikkelde Bosslang)** Pl.: 99

This snake occurs in the rocky regions of the Karoo and open forests and savannah of the northern regions and extending to Port Elizabeth in the east.

Identification: Total length: ~ 60-90 cm, max. 130cm. It has a flat distinct head and the colour of the body is bright green to olive and usually with dark spots and bars on the forebody. The head is green or blue-green and the eyes have golden irises. The belly is in a bright lemon yellow.



***Dasypeltis scabra* (Common or Rhombic Egg-Eater/Gewone Eievreter)** Pl.: 15

This snake is common in whole South Africa but rarely seen.

Identification: Total length: ~ 45-75 cm, max: 120cm. A small, solid snake with a rounded head. The back is slate-grey, light brown or olive-brown with a series of dark squarish blotches. On the top of the head are two narrow v-shaped marks. The belly is white and sometimes flecked.



Biology and breeding: It feeds excessively in spring and summer and doesn't feed in winter. The colour varies to match the local soil colour and it mimics venomous species. In this region it is brown-red and mimics the horned adder. 6-25 eggs are laid in summer and it takes 80-90 days to hatch.



Lizards/Akkesisse (Suborder Sauria)

Family Scincidae (Skinks)

***Scelotus sexlineatus* (Striped Dwarf Burrowing Skink/Streep Dwerggrawende Skink)** Pl.: 48

This burrowing skink is endemic to the succulent veld from Little Namaqualand and Port Nolloth to Clanwilliam.

Identification: SV-Length: 7,5-9,8cm. This skink has a longer tail than its body is. The body is pale silvery-grey and often in a rich buff. All scales are spotted with brown that gives it a finely striped look. The dorsolateral stripes are very good to see.

Biology and breeding: It is found under stones or burrows in sandy soils. The diet are small invertebrates.



***Mabuya capensis* (Cape Skink/Kaapse Skink)** Pl.: 52

The Cape skink is very common throughout southern Africa except in the Namib Desert, extreme northern regions and lowveld. Its habitats varies from arid karoo area to moist coastal bush, montane grassland and many others.

Identification: SV-Length: 8-13,5cm. This skink has a light brown to olive-greyish-brown body with three pale stripes. Between the stripes

and on the flanks are series of dark brown to black spots or short bars. The belly is uniform yellowish-white to grey.

Biology and breeding: This skink lives on the ground and hunts large insects on open sandy spots. It digs tunnels in loose sand at the base of bushes. Most females give birth to 5-18 babies in late summer. But in some regions (e.g.: around Pretoria or Port Elizabeth) the females lay clutches of eggs.



***Mabuya sulcata* (Western Rock Skink/Westelike Klipskink)**

Pl.: 54



male

female

There are three subspecies. Two of them are only in very restricted areas. The race, which occurs in Namaqualand, is the more common one *M. s. sulcata*. It occurs in the karoid areas of the Cape and adjacent Free State, through Namibia to S. Angola.

Identification: SV-Length: 6-8,1cm. The colour varies between the sexes. Juveniles and adult females have a pale olive to olive-brown body. With six dirty-gold stripes. Their chin and throat regions may be infused with yellow-orange. The belly is dirty white and heavily black spotted on the throat. Sexually mature males become a dirty brown coloration on the hind body and black elsewhere and sometimes all-bronze.



Family Lacertidae (Old World Lizards or Lacertids)

***Meroles ctenodactylus* (Smith's Desert Lizard/Smith se Sandakkedis) Pl.: 56**

This lizard is endemic to the vegetated coastal dunes and adjacent sandy plains of Little Namaqualand and the coast of S. Namibia.

Identification: SV-Length: 7-9cm. The colour of the back varies from a greyish-fawn to an orange-brown or russet-brown and is sometimes speckled with dark brown to black. It has a yellowish-white and dark edged dorsolateral stripe which runs from the ear to the tail base with another broad, greyish to dark brown lateral stripe and a yellow lateral stripe below. The belly is white or pale yellow and on the limbs are large yellow-white spots.

Biology and breeding: They are sit-and-wait hunters and shelter in the shade of vegetation to dash and grab passing insects. The dive into loose sand to escape danger and they sleep in the sand during night.



***Meroles suborbitalis* (Spotted Desert Lizard/Gevlekte Sandakkedis) Pl.: 57**

This lizard lives in varied habitats and occurs from the central Karoo to Little Namaqualand and S. Namibia and extends to the central parts of the Namib Desert.

Identification: SV-Length: 5,5-7,1cm. Juveniles are pale yellow-white above with four black stripes and a black network enclosures large pale spots on the limbs. Adults are very variable in coloration. In southern animals the dark stripes develop light brown centres with age and the back becomes grey-brown and covered with large pale spots that may form rows. In the Namib Desert adults are slate-coloured with pinky sheen and irregular rows of dark, pale-edged spots. The belly is creamy white or bluish. In some populations the throat and hind legs of male are yellow.

Biology and breeding: They live on flat gravels or sandy plains. They dash out of the shade of scrubs to catch beetles, grasshoppers, bees and termites. There are differences in breeding behaviour depending on the region. In the central Namib breeding seems to be continuous. In the Kalahari mating occurs in early winter.



***Pedioplanis laticeps* (Cape Sand Lizard/Kaapse Sandakkedis)**

Pl.: 59

This is an endemic species, which is found in the montane grassland and succulent karoid veld of the Central Karoo.

Identification: SV-Length: 5-6cm. The colouration varies. Juveniles are black with five pale cream to white stripes on the back. In adults the lateral stripes become broken into spots. The back becomes brown with scattered pale spots. Three faint stripes remain.

Biology and breeding: They are found on compacted well-vegetated soils. They are sit-and-wait hunters, dashing from behind a rock to catch small insects. The females lay 4-6 eggs in December-January. The young hatch out after 60-70 days in February-march.



Family Cordylidae (Girdled Lizards and Relatives)

***Cordylosaurus subtessellatus* (Dwarf Plated Lizard/Dwerg Pantser Akkedis)**

Pl.: 65

This species occurs in the succulent and karoooid veld of S. Angola through W. Namibia, Namaqualand and W. Cape to Beaufort West in the Karoo and Rooiberg in the Little Karoo. It is the only one with a blue tail in this region.

Identification: SV-Length: 3,5-5,5cm. It has a short head with large head shields and the tail may be up to twice the length of the body. It has a dark brown to black back with distinct pale cream to light yellow dorsolateral stripes that are electric blue on the tail. Its belly is off-white.

Biology and breeding: It forages among succulent vegetation for grasshoppers and other insects. It stops frequently to bask and lift its limbs from the hot sand while resting on the belly. Two eggs are laid in November.



***Gerrhosaurus typicus* (Namaqua Plated Lizard/Namakwa Pantser Akkedis)** Pl.: 64

It lives in the karoooid succulent veld and renoster veld of Little Namaqualand to eastern Great Karoo and western Little Karoo.

Identification: SV-Length: 7,5-11,4cm. It has a short head, large eyes and a rounded body. Its back is fawn to light purple-brown and sometimes with a few scattered dark spots. It also has a pair of dark-edged, white dorsolateral stripes. The flanks are darker with scattered white elongate spots. Its legs are pale pinky-prown. The tail is irregularly spotted and the belly is white. Breeding males have a carrot-red surface under the legs and the base of the tail.

Biology: It lives in small burrows that it digs at the base of bushes. It is active in the early morning and evening. Its diet includes termites and cockroaches.



***Cordylus cataphractus* (Armadillo Girdled Lizard/Armadillo)**

Pl.: 68

This is an endemic species, which lives in the dry, succulent, karoooid veld of the Succulent Karoo from S. Richtersveld to Matjesfontein.

Identification: SV-Length: 7,5-10,5cm. It has a broad head and the scales on the side of the neck have sharp spines. There are 15-17 broad, sometimes asymmetrical, bands of spiny scales around the body and the tail is ringed with large spines. The back is from a dirty yellowish-brown colour. Its upper lips are dark brown. The throat is yellow or violet with dark brown blotches. The belly is yellow with darker patches especially on the inner surface of the limbs.

Biology and breeding: It lives in large cracks in low rock outcrops and feeds on insects. It forms family groups that inhabit the same rock cracks. This is an unusual behaviour for lizards. If it got caught in the open area it bites its tail and roll into a tight ball. That makes it too spiny for predators to eat. But normally it retreats at the first sight of danger in a rock-crack where it is difficult to extract because of its spiny scales.



***Cordylus polyzonus* (Karoo Girdled Lizard/Karoo Gordelakkedis)**

Pl. 69

It has its range in Central and W. Cape into S. Free State and S. Namibia. It prefers karoooid regions, coastal renoster veld and succulent Karoo as its habitats.



Identification: SV-Length: 9- 11,3cm. It has two rows of large spiny scales in each tail whorl. Coloration is regionally varied. Juveniles have a yellow-brown back chequered with dark brown and pale cream. The tail is banded in dark brown. In adults the colour may retain but in Central Cape, coastal Namaqualand and S. Namibia it becomes dark brown or black.

Biology and breeding: During the heat of the day it basks on rocks and grabs beetles or grasshoppers. At the first sign of danger it retreats into a rock-crack.



Family Agamidae (Agamas)

***Agama hispida* (Spiny Agama/Stekelkoggelmander) Pl.: 77**

It is an endemic species, which occurs in the arid regions of the W. and N. Cape and extends to S. Namibia.

Identification: SV-Length: 8-11cm. It has a broad head and a rounded snout. There are regular rows of enlarged spines on the back. The tail is longer than body and head in males and in females it is a little bit shorter. Breeding males have a vivid almost metallic yellow-green head and body with indistinct darker and paler blotches. Their bellies are bluish-grey to blue-green and darker on the chin and throat. Females and juveniles have an olive to brown colour above with 4-5 darker crossbars. Their bellies are yellow-white to pale green with a dark network on the throat.

Biology and breeding: These agamas dug short tunnels at the base of a bush in open sandy veld but also use burrows in ground squirrel colonies. It feeds mainly on ants and beetles. They don't form colonies like the southern rock agama. The females lay 7-11 eggs in October-November.



Family Gekkonidae (Geckos)

***Afroedura Africana* (African Flat Gecko/Afrika Platgeitjie) Pl.: 88**

This is an endemic species with three races. Only the *A. a. namaquensis* is the only one, which occurs in this region.

Identification: SV-Length: 5-6,4 cm. Its back is yellow to buff and has 5-6 wavy dark brown bands. The belly is white-yellow. The dorsal bands may be faint or there are blotches instead.

Biology and breeding: they live under rock flakes on the shaded surface of granite boulders to be protected from the heat of the day. They lay two eggs in rock cracks and these hatch after ~100 days.

***Chondrodactylus angulifer* (Giant Ground Gecko/Reuse Grondgeitjie) Pl.: 79**

There are two subspecies but one of them is restricted to the Namib Desert the other one *C. a. angulifer* occurs in S. Namibia and the karoooid areas of the Cape.

Identification: SV-Length: 7-11cm. it has some enlarged tubercles on the back and wide feet with short toes. Its tail is segmented swollen and shorter than the body. Its back is pale orange to red-brown. The pattern of *C. a. angulifer* is 4-5 pale, dark-edged chevrons on the back. These chevrons extend to bars at the tail. They are more obvious in females than in males. The belly is pink-white.

Biology and breeding: This species is like most geckos nocturnal and spends the day in a burrow that is dug every night new or in old scorpion burrows. It feeds on termites, moths, spiders and other smaller geckos. The females lay 1-2 eggs, which it lays into a small hole that she digs in the sand. If threatened it arches the tail scorpion-like and hisses. It bites if necessary.



***Pachydactylus labialis* (Western Cape Thick-toed Gecko/Weskaapse Geitjie) Pl.: 82**

This gecko is endemic to Namaqualand from Little Namaqualand to Calvinia. It lives here under stones on the sandy soil of the succulent karoooid veld.

Identification: SV-Length: 3-4-6cm. it has 16-18 rows of enlarged tubercles, which are separated by granular scales on the back. Adults are orange-brown to dark greyish-brown and have large paler blotches. The tail is barred with dark brown. The belly is creamy-white. Juveniles are usually dark brown with pale tubercles.



***Pachydactylus serval purcelli* (Western Spotted Thick-toed Gecko/Westelike Spikkelgeitjie) Pl.: 86**

There are three races but only one may occur at Goegap. This is the *P. s. purcelli*. It is found from the W. Little Karoo in the south to SE Namibia.

Identification: SV-Length: 3,5-4,5cm. It has a flattened head and body. Its back is covered with granular scales and has no enlarged tubercles. The colour is variable and reaches from pale olive to greyish-brown with dark brown blotches. The belly is white and the tubercles on the tail are golden.

Biology and breeding: It lives in small rock-cracks and under exfoliating flakes. Females lay two eggs in rock-cracks.



***Pachydactylus weberi* (Weber's Gecko/Weber se Geitjie)** Pl.: 86

This species has its range from W. Cape through Namaqualand to central Namibia. It occurs there in the succulent karoo veld.

Identification: SV-Length: 3,5-4,5cm. This gecko has irregular rows of tubercles that are separated by granular scales on the back. The tail is a little longer than the body and is segmented with rows of 6-8 enlarged tubercles. Juveniles are golden-brown with four light brown to cream crossbars that are dark-edged. The tail has 10-12 black bands and a white tailtip. Adults are dull brown with irregular dark brown blotches and golden tubercles that make them look speckled.

Biology and breeding: It is nocturnal and lives between rock-cracks. It feeds mainly on moths and spiders. Females lay two eggs in a rock-crack and communal egg sites are possible. There lay then up to 60 eggs.



***Goggia lineata* (Striped Leaf-toed Gecko/Streep Blaar-toon Geitjie)** Pl.: 87

This species occurs in the coastal fynbos and succulent transitional karoo veld of the low-lying areas of W. and N. Cape to S. Namibia.

Identification: SV-Length: 2,5-3,2cm. This is a very small species with a cylindrical body a rounded snout and a short deep head. The tail is cylindrical and not segmented. Its back is light grey with a dark striped pattern but sometimes with dark, pale-centred scallops.

Biology and breeding: It is nocturnal and shelters under rubble piles or dead bark during day. It hunts small insects, mainly termites. Females may lay several clutches. Two eggs are laid, usually under bark or in debris.



***Phelsuma ocellata* (Namaqua Day Gecko/Namakwa Dag Geitjie)**

Pl.: 90

This is the only day active gecko, which occurs in Namaqualand. It has its habitat in the succulent karoo veld of N. Little Namaqualand through Richtersveld to SW Namibia.

Identification: SV-Length: 3-4,2cm. It has large eyes with vertical pupils. The scales on the back are smooth and granular. The scales on the belly overlap. It is light brown to greyish-brown on the back with a few pale and dark spots. The belly is blue-white to cream.

Biology and breeding: It is very active and forages on succulent bushes and is found running and jumping between boulders on rocky sites. It shelters under rock flakes. Females lay one to two eggs under a rock flake in September.



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Photographs

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